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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/763,135	06/05/2001	David Seneor	3848-010270	3534

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EXAMINER
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BRUENJES, CHRISTOPHER P

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 05/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/763,135

Applicant(s)

SENEOR, DAVID

Examiner

Christopher P. Bruenjes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 23-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

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**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 17, 2006 has been entered.

***WITHDRAWN REJECTIONS***

2. The 35 U.S.C. 112 and 103 rejections of claims 1, 2, 4-6, and 8-22 of record in the Office Action mailed October 13, 2005 have been withdrawn due to Applicant's cancellation of the claims in the Paper filed April 17, 2006.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and

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use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 23-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 23 and 25, the limitation "an impact resistant, electrically insulating, solvent-free polyurethane directly adhered to the specific blasted areas of the outer surface of the inner tank" is not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The specification teaches that a blasting process is performed on specific areas of the outer surface of the inner reservoir and then teaches that the outer surface area of the reservoir is covered with impervious latex-based paper to from the inner coating layer. Followed by coating the paper with impact resistant, electrically insulating, solvent-free polyurethane. There is no description in the specification teaching that there

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is polyurethane directly adhered to areas of the outer surface of the main reservoir. Furthermore, the drawings presented in the remarks to describe what is claimed were not part of the application as originally filed and therefore cannot be used to provide support to the new claims.

Regarding claims 27 and 28, the limitation "applying an impact resistant, electrically insulating, solvent-free polyurethane directly over the blasted areas of the outer surface of the inner, main tank" is not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The specification teaches that a blasting process is performed on specific areas of the outer surface of the inner reservoir and then teaches that the outer surface area of the reservoir is covered with impervious latex-based paper to form the inner coating layer. Followed by coating the paper with impact resistant, electrically insulating, solvent-free polyurethane. There is no description in the specification teaching that polyurethane is applied directly to the outer surface of the main reservoir. Furthermore, the drawings presented in the remarks to describe what is claimed were not part of the application as

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originally filed and therefore cannot be used to provide support to the new claims.

Claims 24 and 26 are rejected because they incorporate the limitations of claims 23 and 25 respectively.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 23, 25, and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robbins (USPN 5,167,352) in

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view of Mitchell (USPN 5,090,586), Vu et al (USPN 5,130,205), and Mowrer (USPN 4,695,618).

Regarding claims 23 and 25, Robbins teaches an underground reservoir for storing liquid products (col.1, 1.13-15). The reservoir is a partially double walled reservoir because it contains a one sided corrugated cardboard layer that is connected to the main reservoir and some points but some are spaced from the main reservoir forming a partially double walled reservoir. The underground reservoir comprises a single-component, rigid, inner, main tank having an outer surface (col.1, 1.15-18). The inner, main reservoir is made of carbon steel (col.16, 1.57-60 and col.17, 1.15-17). The reservoir further contains a one-sided corrugated cardboard tack-bonded to the outer surface of the inner tank (col.16, 1.44-64). The secondary, outer reservoir consists of an inner layer consisting of a one-sided corrugated cardboard (col.16, 1.44-47), in which cardboard is a paper material and the one sided corrugated cardboard is impervious to the outer coating layer of resin (col.17, 1.1-11) making it impervious paper material. Furthermore, Robbins teaches that the barrier layer, which is described as the one-sided corrugated cardboard, may also incorporate a vapor barrier sheet formed of waxed paper on the outer surface of the barrier layer (col.14, 1.30-41). Note the

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applicant's claimed inner layer made from impervious paper material given its broadest reasonable interpretation includes the one-sided corrugated cardboard with the vapor barrier sheet formed on its outer surface. The outer layer of resin is formed with or without fiber-reinforcement from polyurethane (col.12, 1.34-39). The thickness of the outer layer is approximately 0.1 inch or 2.54mm (col.12, 1.49-55). The paper material inherently provides the polyurethane with tensile strength because one-sided corrugated cardboard has greater tensile strength than polyurethane, and the polyurethane inherently provides the paper material with cut and shear resistance, because cardboard is easily cut and polyurethane is not. The main tank includes a pipe for feeding the liquid product to be stored, a pipe for removing the product stored for distribution, a well for use in connection with a buoy or a sensor for detecting the presence of liquid and a check point for use in verifying integrity (col.13, 1.30-60). Since the secondary tank is from only paper material and polyurethane it inherently is formed from an electrically insulating, non-metallic material configured to prevent the formation of a galvanic couple.

Regarding claims 27-28, Robbins teaches a process for manufacturing an underground reservoir comprising the steps of providing a single component, rigid, inner, main reservoir made



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form steel (col.16, 1.57-60 and col.17, 1.15-17). Applying a tack-bond resin to specific portions of the outer surface of the inner, main tank. Surrounding the outer surface of said main reservoir with a bi-component outer, secondary tank consisting of integrally bonded, indivisible inner and outer layers. The inner layer is made of one-sided corrugated cardboard (col.16, 1.44-47), in which cardboard is a paper material and the one sided corrugated cardboard is impervious to the outer coating layer of resin (col.17, 1.1-11). The outer layer is made from an impact resistant, electrically insulating polyurethane over said first coating layer thereby forming bonded, two-component outer, secondary reservoir (col.12, 1.34-39). The thickness of the outer layer is approximately 0.1 inch or 2.54mm (col.12, 1.49-55). The paper material inherently provides the polyurethane with tensile strength because one-sided corrugated cardboard has greater tensile strength than polyurethane, and the polyurethane inherently provides the paper material with cut and shear resistance, because cardboard is easily cut and polyurethane is not.

Regarding claims 23, 25, and 27-28, Robbins fails to explicitly teach that specific areas of the outer surface of the main tank are blasted to enhance the adhesion of a polyurethane, or the resin used to tack bond the cardboard to the outer

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surface of the main tank, or that the polyurethane used in Robbins is solvent-free. However, Mitchell teaches that in the dual wall tank art it is a common technique to abrasive or "jet" blast steel for the purpose of enhancing bonding of adhesive resins to the outer surface of the main reservoir (col. 4 lines 14-15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a step in making Robbins to abrasive or "jet" blast the steel main reservoir in the specific areas the tack-bond resin would be applied before tack-bonding the corrugated cardboard to the steel reservoir in order to enhance bonding, as taught by Mitchell.

Robbins further fails to explicitly teach what resin is used to tack-bond the cardboard paper material to the main tank made of steel. However, Vu et al teach that polyurethane compositions used as protective coatings are also used as adhesives for bonding paper to metal (col.6, l.53-63). Robbins teaches that the resin used to form the protective coating for the underground reservoir is polyurethane, so it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to use the same polyurethane used as the protective coating of Robbins for forming the tack-bond

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between the metal tank and the one-sided corrugated cardboard, since Vu et al teach that polyurethane is used for both purposes, and one of ordinary skill in the art would have recognized that using the same resin material for both purposes would eliminate a raw material used in forming the tank, which is known to render the article easier and less expensive to manufacture.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to select polyurethane used for the outer coating layer as the tack bond resin used to tack bond the one-sided corrugated cardboard to the metal tank, since it is known to use polyurethane for both purposes, as taught by Vu et al, and since one of ordinary skill in the art would have recognized that using polyurethane for both purposes would make the article easier and less expensive to manufacture because one less raw material would be required.

Finally, Robbins fails to explicitly teach that the polyurethane is solvent-free. However, Mowrer teaches that solvent based polyurethane coatings are replaced by solventless airless sprayed coatings in order to comply with government environmental and health hazard regulations that limit both the type and amount of volatile organic compounds (col.1, 1.40-49)

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and higher coating thicknesses can be performed without sagging, there is a shorting curing time, and there is less material to store, handle and apply (col.7, 1.52-68). One of ordinary skilled in the art would have recognized that Robbins and Mowrer are analogous insofar as both references are concerned with forming protective coatings on metals in the construction industry.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to select solventless airless sprayed polyurethane coatings as the sprayed polyurethane coating used in Robbins in order to eliminate volatile solvents which present health or explosion hazards, allow the coating to be applied in thicker coatings, and have quicker curing time, which are all disadvantages of sprayed solvent based polyurethane coatings, as taught by Mowrer.

8. Claims 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robbins in view of Mitchell, Vu et al, and Mowrer as applied to claims 23 and 25 above, and further in view of Bartelloni (USPN 4, 510,019).

Robbins, Mitchell, Vu et al, and Mowrer taken as a whole teach all that is claimed in claims 23 and 25. Robbins also

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teach that vapor barrier sheet made of wax paper or saran wrap is added as part of the barrier layer or inner layer made from an impervious paper material in the double wall tank, in order to ensure that the porous layer is not dissolved by the resin of the outer layer coating (col.14, 1.30-41), but fails to explicitly teach the vapor barrier sheet of wax paper is formed from latex-based paper. However, Bartelloni teach that latex-based paper is used in construction as a paper that possesses impermeability, flexibility, and resistance (col.1, 1.19-30). Robbins teaches that the vapor barrier sheet must be resistant and impermeable (col.14, 1.30-41) and teaches two examples, waxed paper and Saran Wrap, which are both impermeable, flexible, resistant materials, for the vapor barrier sheet. One of ordinary skill in the art would have recognized that latex-based paper, which possesses the properties to perform the requirements of the vapor barrier sheet, would be used in forming a barrier between open-cell foam material and an outer resin layer of an underground storage reservoir, because latex-based paper is impermeable, flexible and resistant, as taught by Bartelloni.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the applicant's invention was made to use the latex-based paper of Bartelloni as the vapor

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barrier sheet of Robbins in order to provide a material that is impermeable, flexible and resistant, as taught by Bartelloni.

***Response to Arguments***

9. Applicant's arguments with respect to claims 1, 2, 4-6, 8-12, 15, and 16 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Li et al (USPN 6,221,978).

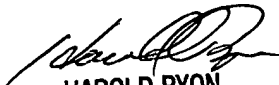
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Bruenjes whose telephone number is 571-272-1489. The examiner can normally be reached on Monday thru Friday from 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christopher P Bruenjes  
Examiner  
Art Unit 1772  
CPB  
May 17, 2006

  
HAROLD PYON  
SUPERVISORY PATENT EXAMINER  
1772

5/22/08